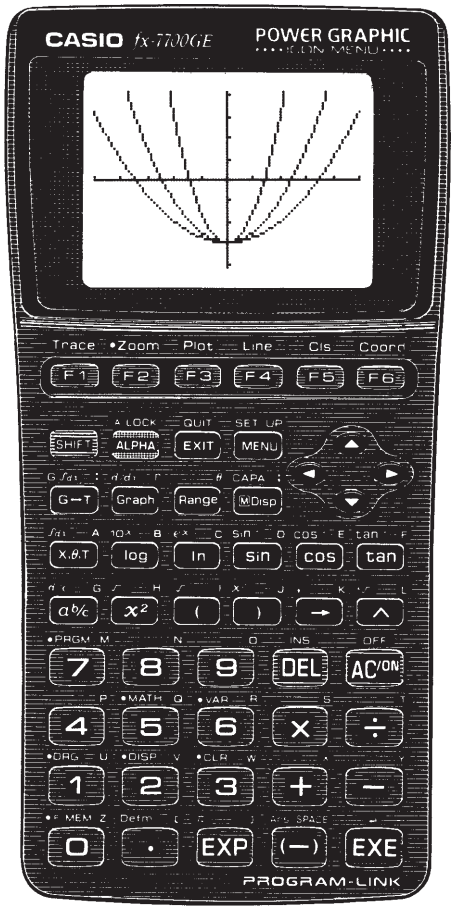
SERVICE MANUAL & PARTS LIST (without price)

fx-7700GE (LX-375)

MAR. 1994



FX-7700 GE

CASIO®

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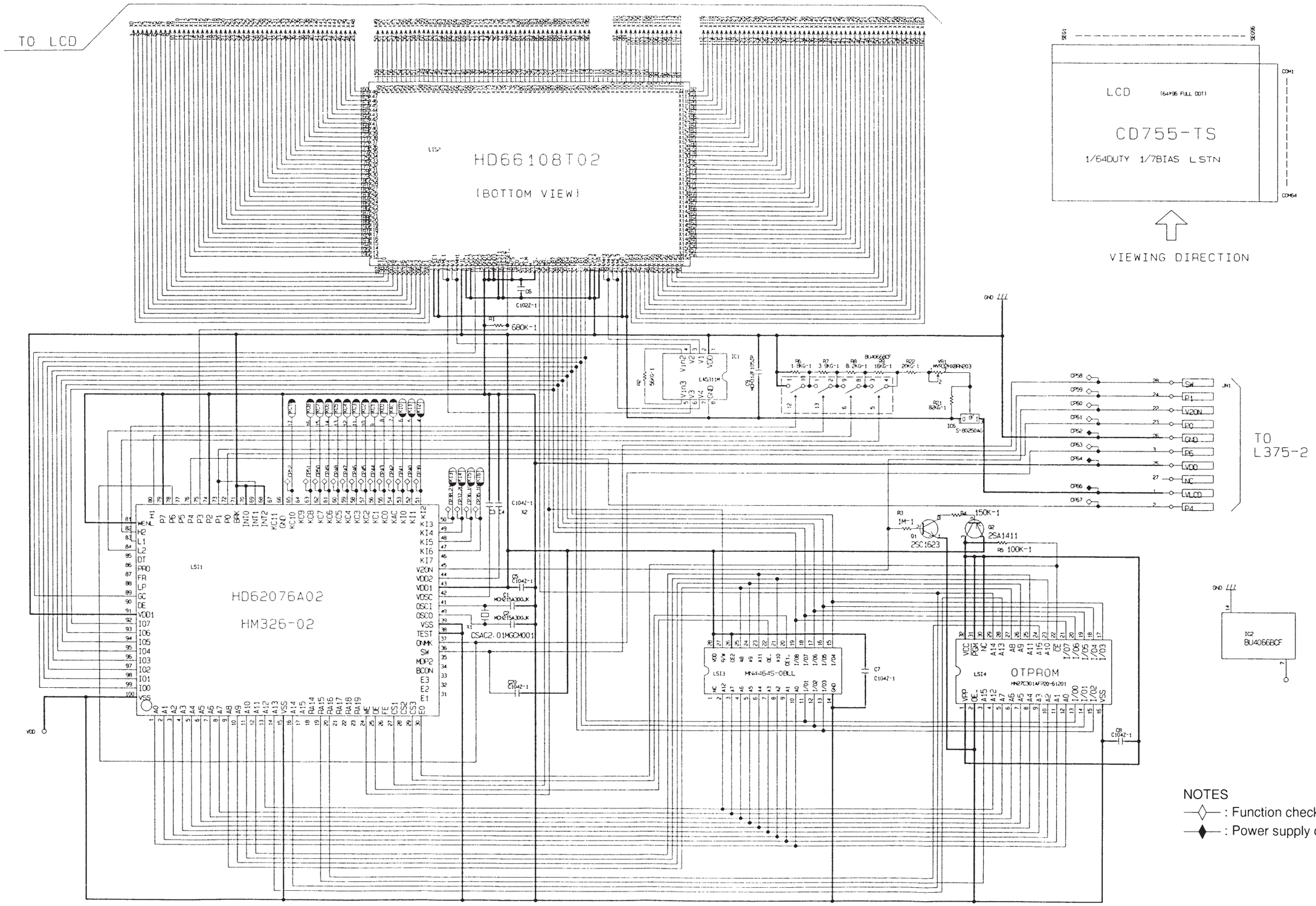
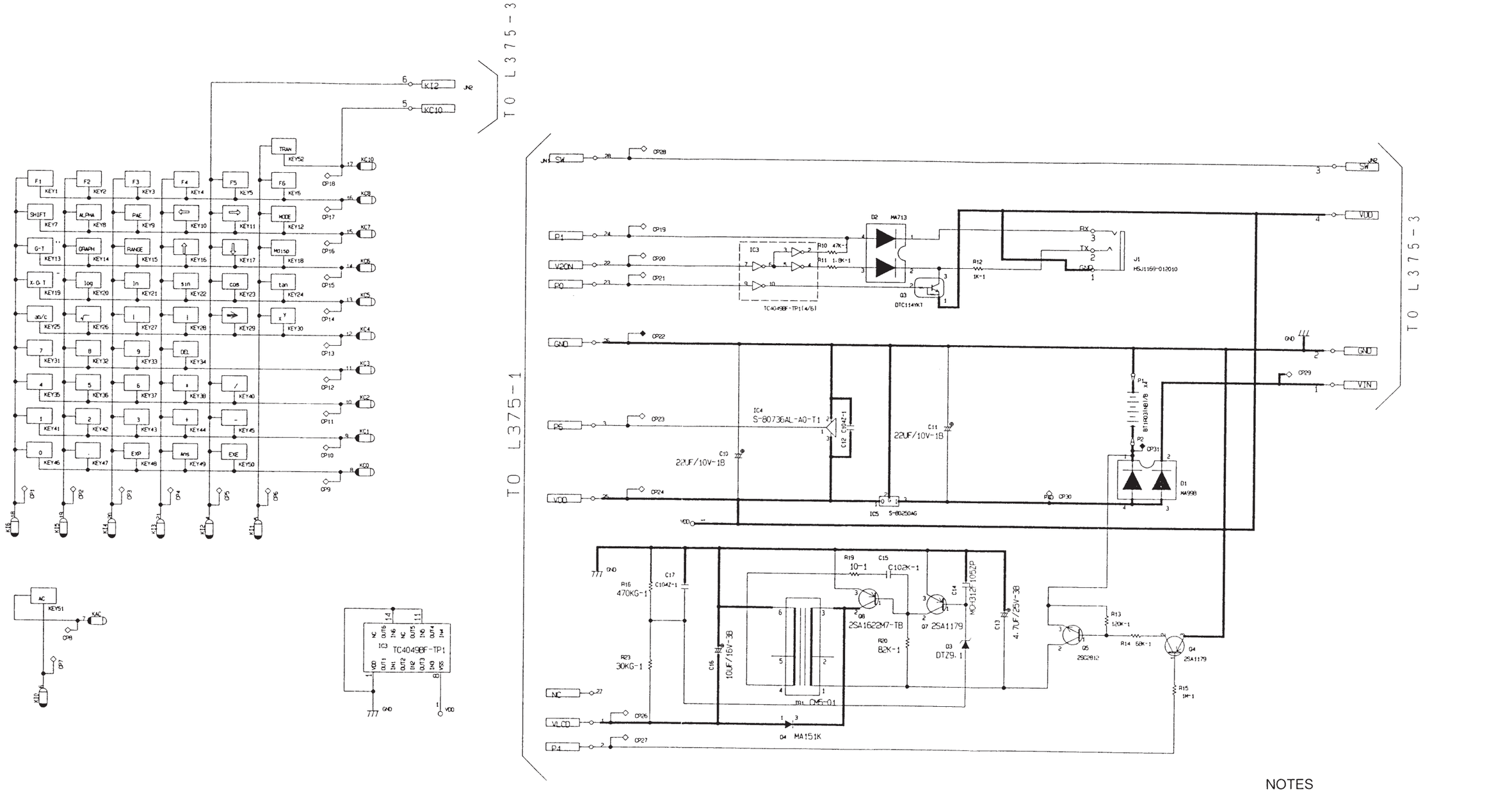
1. SCHEMATIC DIAGRAMS

1-1. MAIN BOARD I



1-2. MAIN BOARD II

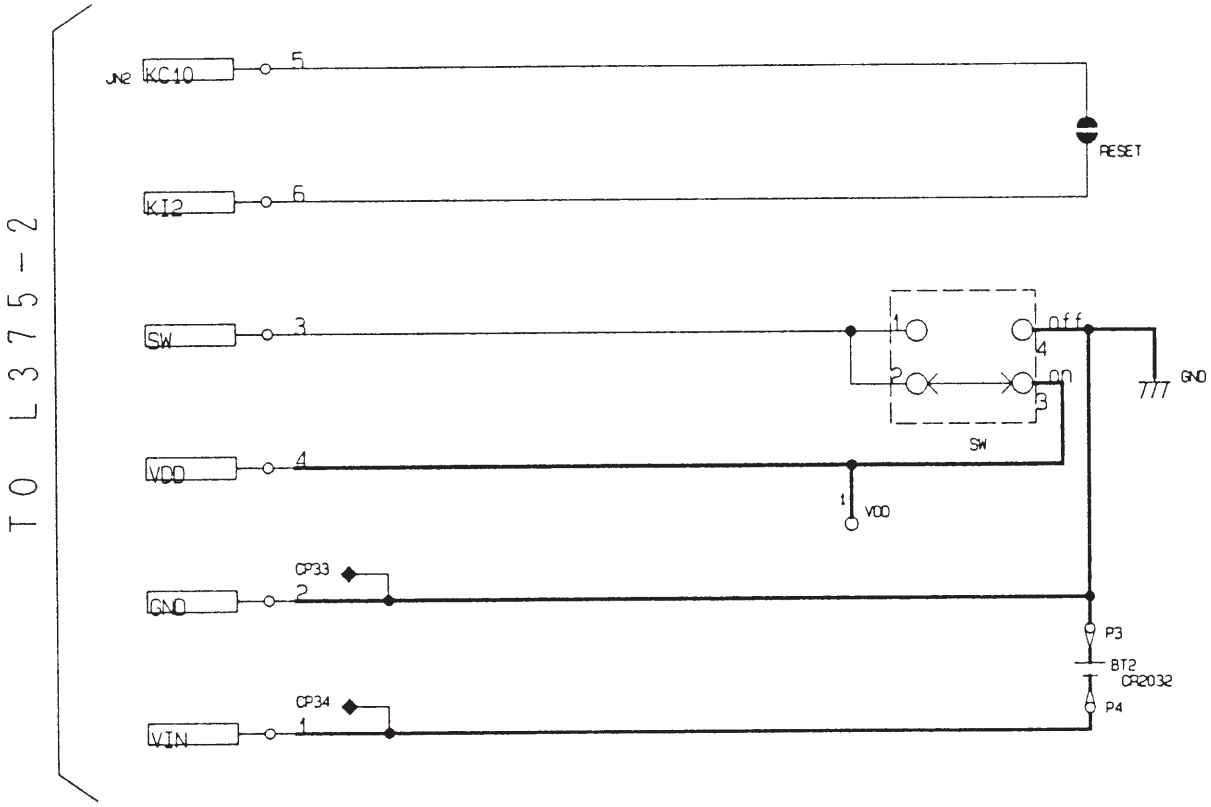


NOTES

—◇— : Function checking points.

—◆— : Power supply checking points.

1-3. MAIN BOARD III



NOTES

—◇— : Function checking points.

—◆— : Power supply checking points.

2. SPECIFICATIONS

Display system: 16-character x 8-line liquid crystal display; 10-digit mantissa and 2-digit exponent for calculations; displays binary, octal, hexadecimal, sexagesimal values, fraction

Power supply: Main: Four AAA-size batteries (LR03(AM4) or R03 (UM-4))
Memory protection: One CR2032 lithium battery

Power consumption: 0.1W

Battery life: Main: Approximately 350 hours (continuous display of 0) on battery type LR03 (AM4)
Approximately 200 hours (continuous display of 0) on battery type R03 (UM-4)
Approximately 2 years (power switch off) on LR03 (AM4)/R03 (UM-4)
Memory protection: Approximately 1 year

Auto power off: Power is automatically switched off approximately six minutes after last operation.

Ambient temperature range: 0°C ~ 40°C (32°F ~ 104°F)

Dimensions: 20mmH x 85mmW x 172.5mmD ($^3/_4$"H x $3^3/_8$"W x $6^3/_4$"D)

Weight: 218.5g (7.7 oz) including batteries

Accessories: Hard Case

CURRENT CONSUMPTION

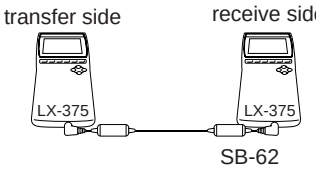
	TYP [µA]	MAX [µA]
ON	2673	5147
OFF	————	15

3. OPERATION CHECK

NO.	OPERATION	DISPLAY	NOTE
1	[AC]	MAIN MENU COMP BASE SD REG MAT GRAPH EQUA PRGM LINK CONT RESET	
2	[RESET]	******************** * RESET * ******************** RESET ALL MEMORIES? [YES] RESET ALL [NO]	
3	[F1]	******************** * * * RESET * * ALL MEMORIES! * * * * * ********************	
4	[SHIFT] [AC]	No Display	
5	[F6] [$a^b/_c$] [AC] Press the above keys at the same time.	== Lx375 TEST == 1. LCD 4. ROM 2. KEY 5. TRS 3. RAM 0. rst	
6	[1]	No Display	

NO.	OPERATION	DISPLAY	NOTE
7	EXE	Checker Display	
8	EXE	Reverse checker display	
9	EXE	All dot display	
10	EXE	Frame didsplay	
11	EXE	== Lx375 TEST == 1. LCD 4. ROM 2. KEY 5. TRS 3. RAM 0. rst	
12	2	Trace	

NO.	OPERATION	DISPLAY	NOTE
13	F1 (Trace) F2 (ZOOM) F3 (Plot) F4 (Line) F5 (cls) F6 (coord) SHIFT ALPHA EXIT MENU ↑ ← → G↔T Graph Range MDisp ↓ X.Q.T log ln Sin Cos Tan $a^b/_c$ X^2 ( ) → ^ > 8 9 DEL AC 4 5 6 x ÷ 1 2 3 + – 0 . EXP (-)	ZOOM	Press the key sequentially appeared on the display.
14	EXE	== Lx375 TEST == 1. LCD 4. ROM 2. KEY 5. TRS 3. RAM 0. rst	
15	3	...	
–		<< RAM OK >>	A few seconds after
16	EXE	== Lx375 TEST == 1. LCD 4. ROM 2. KEY 5. TRS 3. RAM 0. rst	
17	4	...	

NO.	OPERATION	DISPLAY	NOTE
–		00A6C77D	A few seconds after.
18	[EXE]	== Lx375 TEST == 1. LCD 4. ROM 2. KEY 5. TRS 3. RAM 0. rst	
–	Connect the two Lx-375 by using SB-62.  		
19	[5]	TRANSMIT CHECK 1. COM CHECK 2. RANDOM DATA OUT	Transfer side
20	[1]	1. TRANS 2. RECEIVE	Transfer side
(21)	< Set the receive side machine. > • Operate the in order of No.1~5. • Press the [5] key.	1. TRANS 2. RECEIVE	Receive side

NO.	OPERATION	DISPLAY	NOTE
(22)	[2]	DATA RECEIVE TO STOP PRESS AC KEY	Receive side
23	[1]	TRANSMITTED	Transfer side
		<< RECEIVE OK >>	Receive side
24	[EXE] Remove the SB-62.	== Lx375 TEST == 1. LCD 4. ROM 2. KEY 5. TRS 3. RAM 0. rst	
25	[0]	******************** * * * RESET * * ALL MEMORIES! * * * * * *********************	
26	[SHIFT] [AC]	No Display	END

4. DATA COMMUNICATIONS

■ General Procedure

The following is the general procedure to follow when performing data communications. Details of each procedures are presented in the following sections of this chapter.

- Though you can transfer data between the fx-7700GE and another fx-7700GE, an fx-7700GB or an fx-8700GB, all of the examples in this manual cover data transfer with another fx-7700GE only.

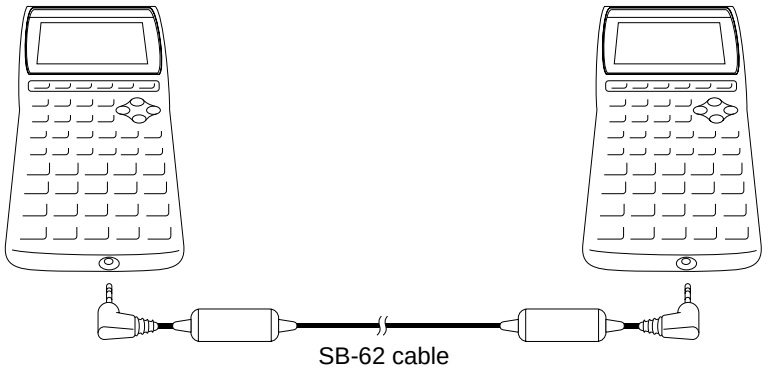
1. Connect the two units.
2. Set up the two units with the same parameters.
3. Set up one unit to send, and the other unit to receive.
4. On the receive unit, specify the data to be received and put the unit into receive standby.
5. On the send unit, specify the data to be sent and start the send operation.

4-1. CONNECTING TWO fx-7700GE UNITS

The following procedure describes how to connect two Power Graphic units with an optional SB-62 connecting cable for transfer of programs between them.

■ To Connect Two fx-7700GE Units

1. Check to make sure that the power of both fx-7700GE units is off.
2. Remove the covers from the connectors of the two Power Graphic units.
   - Be sure you keep the connector covers in a safe place so you can replace them after you finish your program communications.
3. Connect the two units using the SB-62 cable.



Important

- Keep the connectors of the fx-7700GE covered when you are not using them.

4-2. BEFORE STARTING DATA COMMUNICATIONS

Before actually starting data communications, you should first enter the LINK Mode from the Main Menu.

■ To Enter the LINK Mode

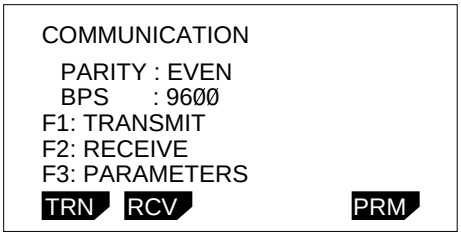
Highlight the **LINK** icon on the Main Menu.

MENU

▲ ▼ ◀ ▶

Press EXE or 9 to display the LINK Mode.

EXE or 9



The following are the operations that can be selected from the function menu at the bottom of the display. Press the function key below the operation you want to perform.

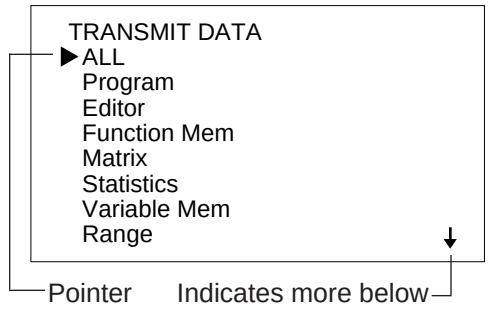
F1 (TRN) ..... Transmit
F2 (RCV) ..... Receive
F6 (PRM) ..... Parameter settings

■ About the Data Type Selection Screen

Whenever you press F1 (TRN) to send data or F2 (RCV) to receive data, a data type selection screen appears on the display.

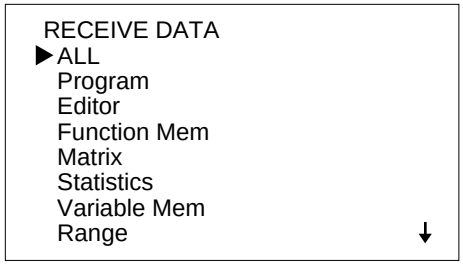
Send Unit

F1 (TRN)



Receive Unit

F2 (RCV)



The following table describes what each of these items means. You will learn later how to make a selection using these screens.

Selection	Meaning
ALL	All data from Program to Equation
Program	Program data
Editor	File names and file data
Function Mem	Function memory contents
Matrix	Matrix memory contents
Statistics	Single-variable and paired-variable statistical data
Variable Mem	Value memory and extended memory contents
Range	Graph range parameters
Factor	Factor function zoom ratios
Table	Table & Graph function data
Graph Function	Graph functions
Equation	Equation coefficients
Back Up	All memory contents, including mode settings

Note

- If the selections you make on the send unit and receive unit do not match, a TRANSMIT ERROR will be generated on the sender and a RECEIVE ERROR will be generated on the receiver.

4-3. SETTING COMMUNICATIONS PARAMETERS

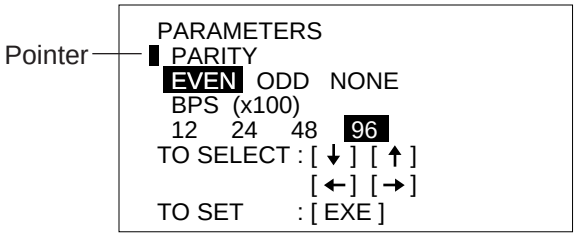
Before you can perform data communications, you must first set up cartain hardware parameters to make sure that the two units are able to understand each other. The parameters of the sender and the receiver must be identical for them to be able to communicate correctly. There are two hardware parameters that you can set.

Parameter	Settings
Parity	EVEN ODD NONE
Speed (BPS)	12(1200) 24(2400) 48(4800) 96(9600)

■ To Set fx-7700GE Parameters

Starting from the LINK Mode:

F6 (PRM)



* The parameters that are currently set are highlighted on the display.

The pointer indicate which parameter you can change. Use ◄ and ► to move the highlighting and change the parameter where the pointer is located.

► ►

```
PARAMETERS
▌PARITY
 EVEN  ODD  NONE
 BPS (x100)
 12   24   48  96
TO SELECT : [ ↓ ] [ ↑ ]
            [ ← ] [ → ]
TO SET    : [ EXE ]
```

Use ▲ and ▼ to move the pointer up and down.
After the parameters are highlighted the way you want, press EXE to store them.

EXE

```
COMMUNICATION
  PARITY : NONE
  BPS    : 96ØØ
F1: TRANSMIT
F2: RECEIVE
F6: PARAMETERS

TRN RCV          PRM
```

- To abort the parameter setting procedure and return the settings to what they were before you changed them, press AC before pressing EXE to store the parameters.

4-4. USING ALL TO SEND ALL DATA

The following procedures show how to send all data, from Program to Equation from one fx-7700GE unit to another.

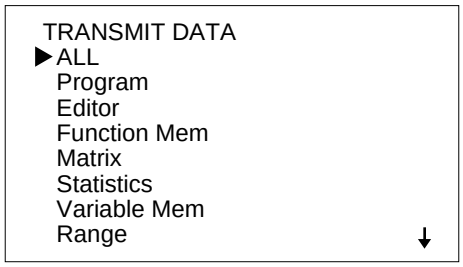
- Warning!
  The following operation causes data in the seven applicable memory areas (program, function memory, matrix memory, single-variable and paired-variable statistical data memory, value and extended mempry, graph function memory, and equation coefficient memory) of the receiving unit to be replaced by the received by the received data. Make sure that you do not need the data stored in the receiving unit before you start this operation.

• To send ALL data

Send Unit

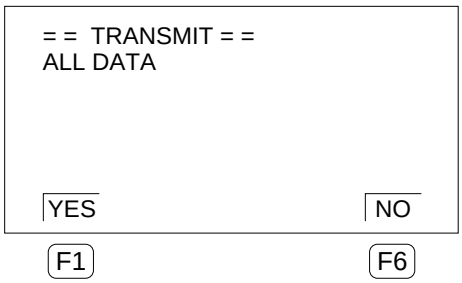
Starting from the LINK Mode, press the function key to enter the send mode.

F1 (TRN)



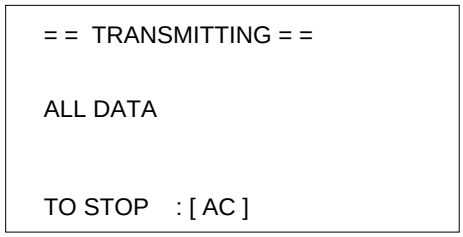
Make sure that the pointer is located at ALL, and press EXE to specify it as the data type.

EXE



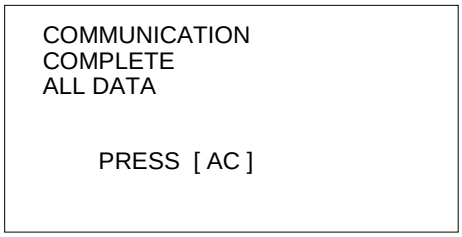
Press F1 (YES) to start the send operation, or F6 (NO) to abort without sending anything.

F1 (YES)



* Pressing AC interrupts the send operation and returns to the LINK Mode.

The following appears after the send operation is complete.

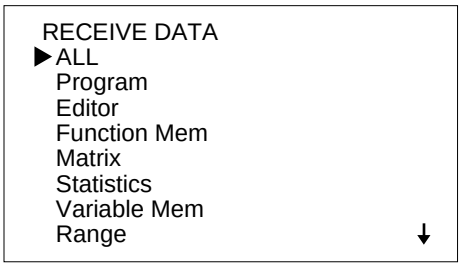


* Press AC to return to the LINK Mode.

Receive Unit

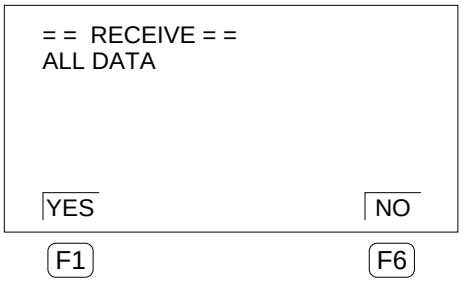
Starting from the LINK Mode, press the function key to enter the receive mode.

F2 (RCV)



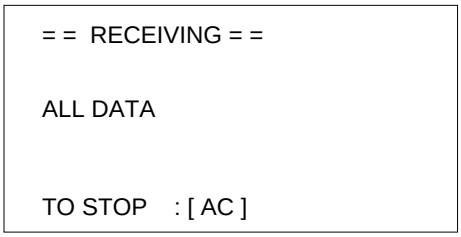
Make sure that the pointer is located at ALL, and press EXE to specify it as the data type.

EXE



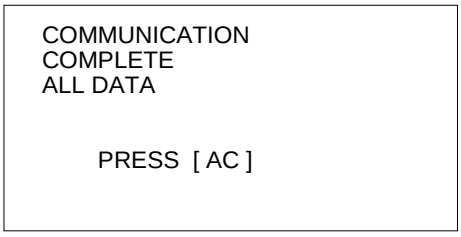
Press F1 (YES) to start the receive operation, or F6 (NO) to abort without receiving anything.

F1 (YES)



* Pressing AC interrupts the receive operation and returns to the LINK Mode.

The following appears after the receive operation is complete.



4-5. USING PROGRAM TO SEND PROGRAM DATA

The following procedures show how to send program data from one fx-7700GE unit to another. You can specify one specific program or all programs for the communication operation.

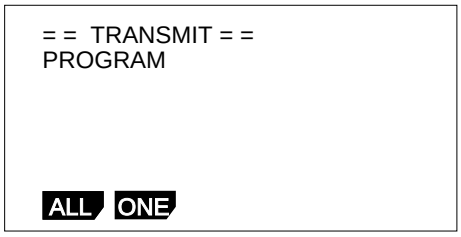
• To send all PROGRAM data

Send Unit

Starting from the LINK Mode, press [F1] (TRN) to enter the send mode.

Move the pointer to Program, and press [EXE] to specify it as the data type.

[▼] [EXE]



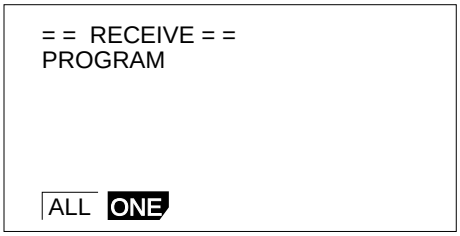
[F1] [F2]

Receive Unit

Starting from the LINK Mode, press [F2] (RCV) to enter the receive mode.

Move the pointer to Program, and press [EXE] to specify it as the data type.

[▼] [EXE]



[F1] [F2]

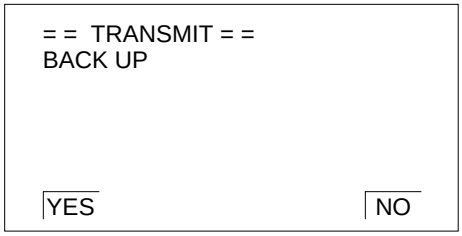
• To back up all data

Send Unit

Starting from the LINK Mode, press [F1] (TRN) to enter the send mode.

Move the pointer to Back Up, and press [EXE] to specify it as the data type.

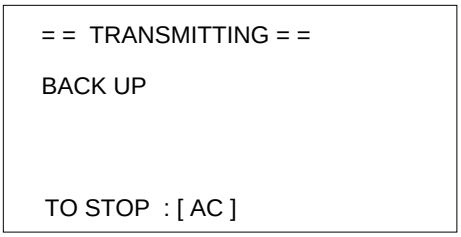
[▼] [▼] [▼] [▼] [▼] [▼] [▼] [▼] [▼] [EXE]



[F1] [F6]

Press [F1] (YES) to start the send operation, or [F6] (NO) to abort without sending anything.

[F1] (YES)



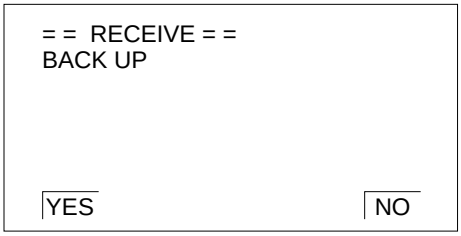
* Pressing [AC] interrupts the send operation and returns to the LINK Mode.

Receive Unit

Starting from the LINK Mode, press [F2] (RCV) to enter the receive mode.

Move the pointer to Back Up, and press [EXE] to specify it as the data type.

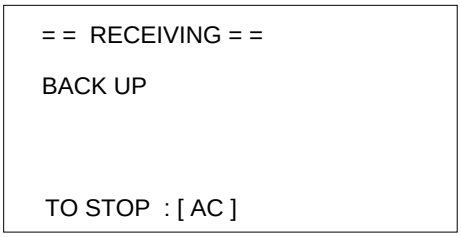
[▼] [▼] [▼] [▼] [▼] [▼] [▼] [▼] [▼] [EXE]



[F1] [F6]

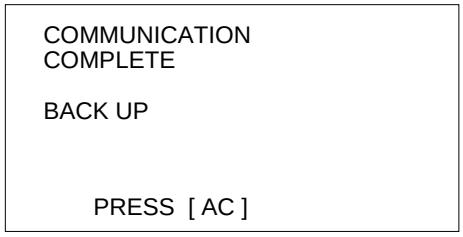
Press [F1] (YES) to start the send operation, or [F6] (NO) to abort without receiving anything.

[F1] (YES)

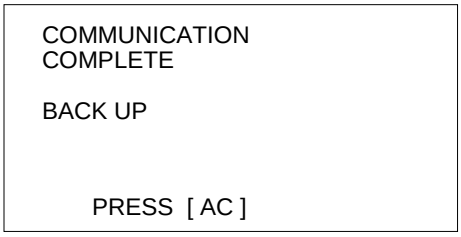


*Pressing [AC] interrupts the receive operation and returns to the LINK Mode.

The following appears after the send operation is complete.



The following appears after the receive operation is complete.



* Press AC to return to the LINK Mode.

4-6. DATA COMMUNICATIONS PRECAUTIONS

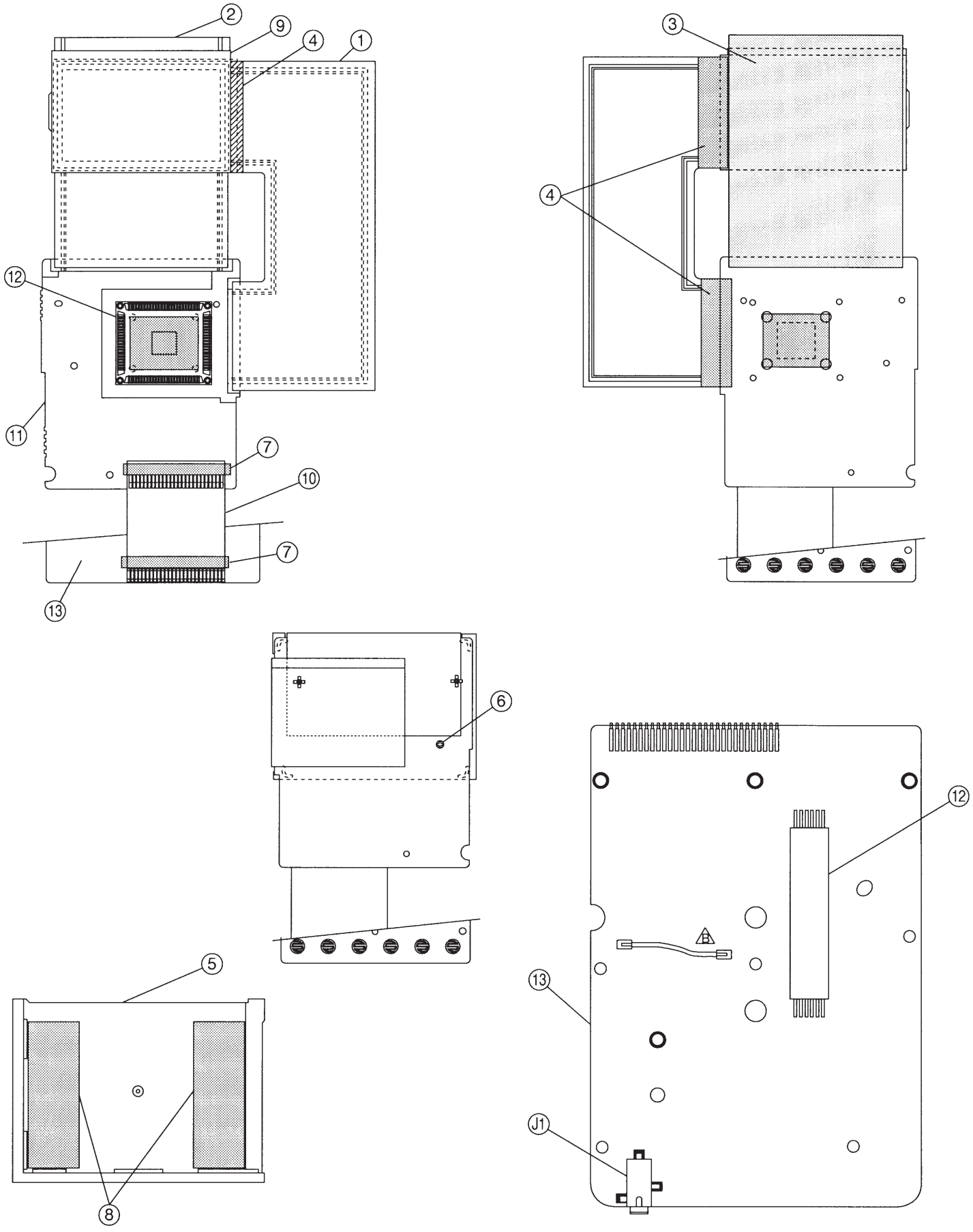
Note the following precautions whenever you perform data communications.

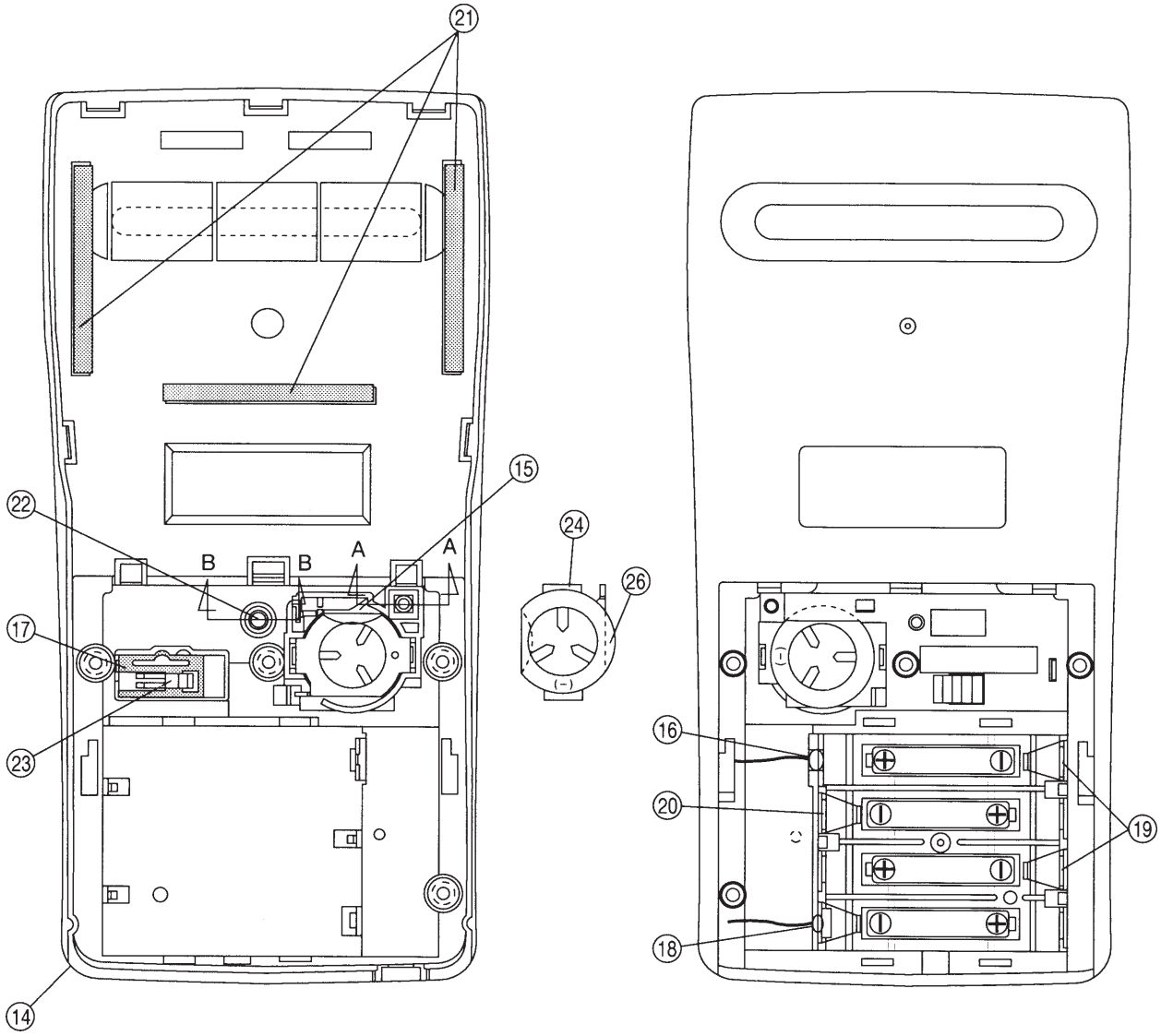
- A TRANSMIT ERROR occurs whenever you try to send data to a receiving unit that is not yet standing by to receive data. When this happens, press AC to clear the error and try again, after setting up the receiving unit to receive data.
- A RECEIVE ERROR occurs whenever the receiving unit does not receive any data approximately six minutes after it is set up to receive data. When this happens, press AC to clear the error.
- A TRANSMIT ERROR or RECEIVE ERROR occurs during data communications if the cable becomes disconnected, if the parameters of the two units do not match, or if any other communications problem occurs. When this happens, press AC to clear the error and correct the problem before trying data communications again. In this case, any data received before the problem occurred is cleared from the receiving unit's memory.
- A MEMORY FULL operation occurs if the receiving unit memory becomes full during data communications. When this happens, press AC to clear the error and delete unneeded data from the receiving unit to make room for the new data, and then try again.

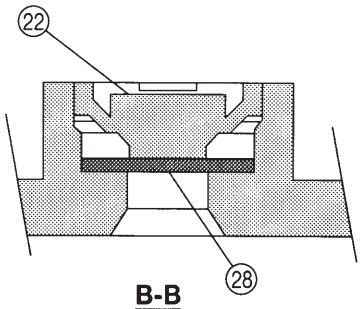
5. TROUBLESHOOTING

SYMPTOM	CAUSE	SOLUTION
Intermittent display	Dirt or poor contact on battery	Clean or adjust pressure of contact
	Poor contact on power switch	Clean or replace power switch
	Poor connection on PC joiner	Resolder or replace
	Poor soldering on LSI, capacitor, or resistor	Resolder
No display at all	Weak battery	Replace battery
	Dirt or poor contact on battery	Clean or adjust pressure of contact
	Poor contact on power switch	Clean or replace power switch
	Poor connection on PC joiner	Resolder or replace
	Defective LSI, capacitor, or resistor	Replace
Erratic display	Poor contact between LCD and PCB	Replace the heat seal
	Poor soldering on LSI	Resolder or replace display PCB ass'y
Certain key does not function	Dirt on key contact	Clean or replace contact
	Heavy key motion	Clean or replace the key
	Poor soldering on LSI	Resolder
	Defective LSI, capacitor, or resistor	Replace
All keys do not function	Constant contact is made on a certain key	Separate the contact
	Defective LSI, capacitor, or resistor	Replace
Heavy key motion	Dirt or scratch on the key	Clean or replace the key

6. DISASSEMBLY VIEW







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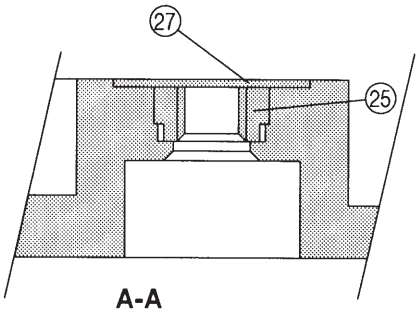

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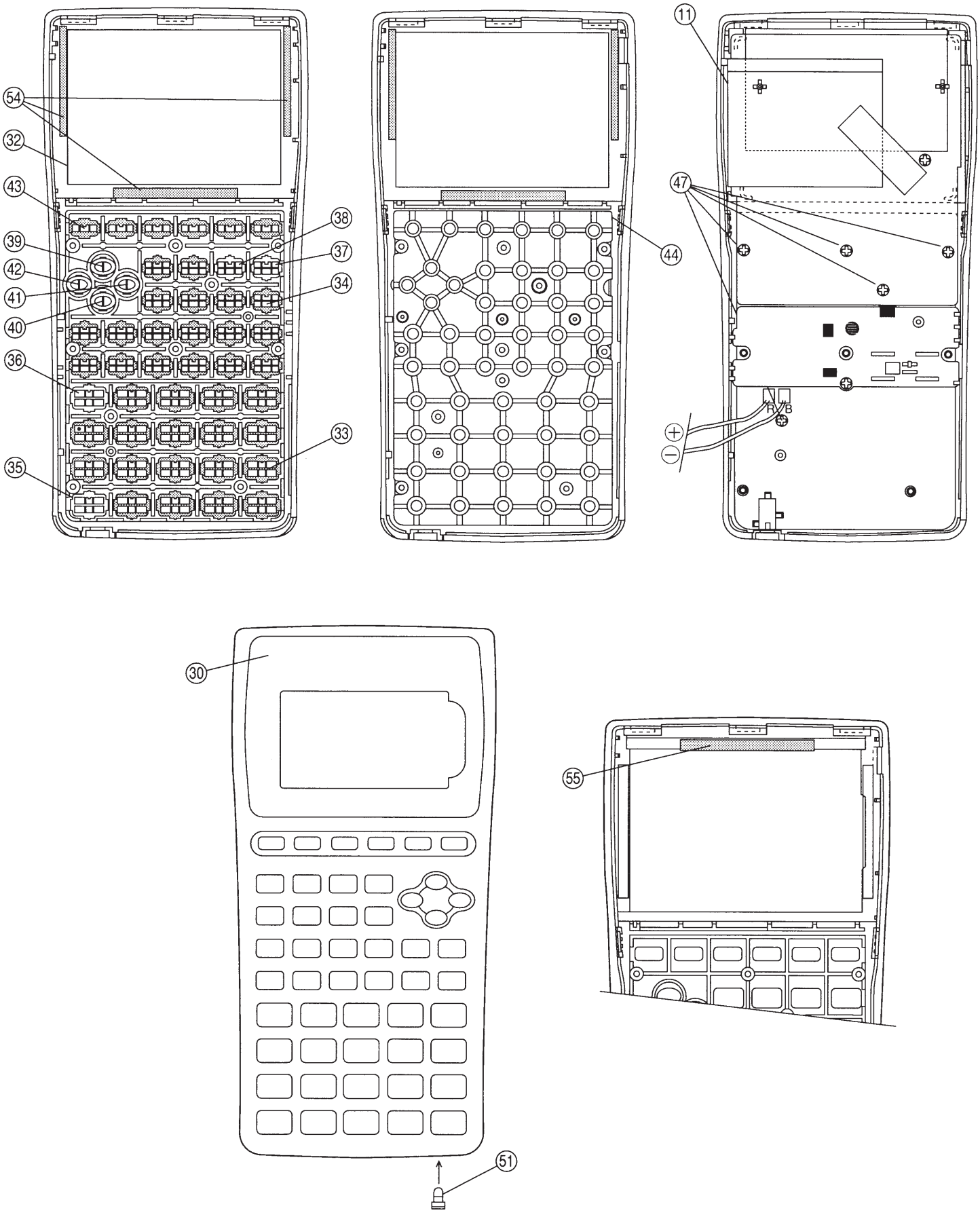
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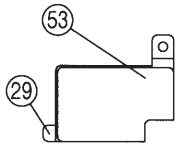
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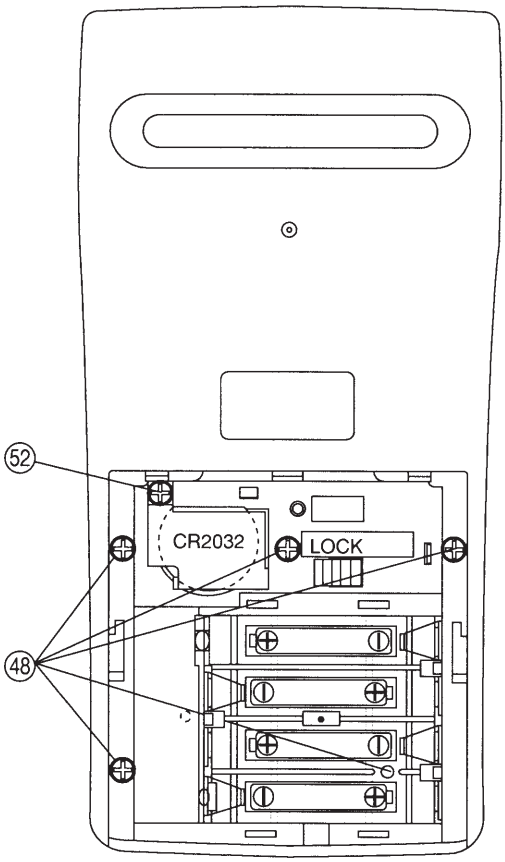
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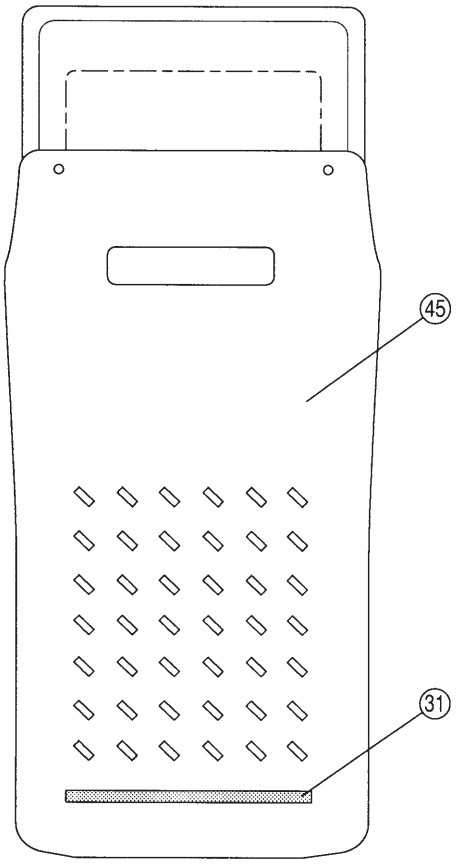
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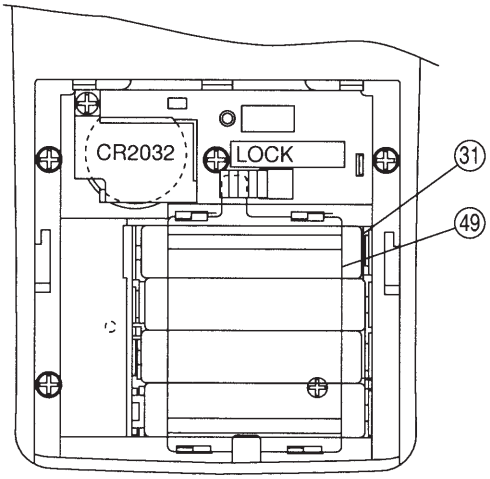
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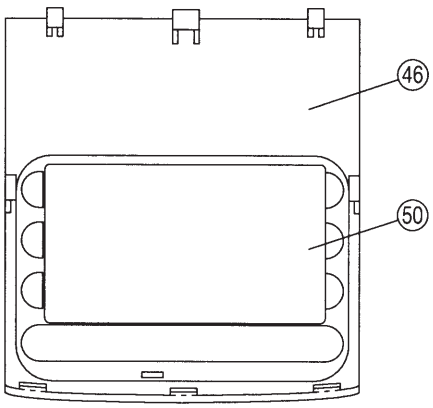
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7. PARTS LIST

N	Item	Code No.	Parts Name	Specification	Q	M	FOB Japan N.R.Yen Unit Price	R
		L375-1 ASS'Y						
	LSI1	2011 0105	LSI	HD62076A02	1	1		C
	LSI2	2011 1239	LSI	HD66108T02	1	1		C
N	LSI3	2010 7259	LSI	MN4464S-08LL	1	1		C
N	LSI4	2011 7280	LSI	HN27C301AFP20-61201	1	1		C
	IC1	2189 2009	Linear IC	LA5311M-TP-T1	1	1		C
N	IC2	2105 3213	C-MOS IC	BU4066BCF-T1	1	10		C
N	IC6	2105 2982	MOS IC	S-80250AG-GB-T1	1	5		C
	X1	2590 0777	Ceramic oscillator	CSAC2.01MGCM001-TC	1	1		C
	C1/C2	2845 2499	Chip capacitor	MCH215A300JK	2	20		C
	C3/C4/C5/C6 C7/C8/C20	2845 1540	Chip capacitor	MCH212F104ZK	7	20		C
	C9	2845 1925	Chip capacitor	MCH312F105ZP	1	10		C
	R1	2795 1309	Chip resistor	MCR10EZHJ684	1	10		C
	R2	2795 3262	Chip resistor	MCR10EZHG563	1	20		C
	R3	2795 0532	Chip resistor	MCR10EZHJ105	1	20		C
	R4	2792 0977	Chip resistor	MCR10EZHJ154	1	10		C
	R5	2792 0209	Chip resistor	MCR10EZHJ104	1	20		C
	R6	2795 2450	Chip resistor	MCR10EZHG182	1	20		C
N	R7	2795 0504	Chip resistor	MCR10EZHG392	1	20		C
N	R8	2730 0622	Chip resistor	MCR10EZHG822	1	20		C
N	R9	2795 4956	Chip resistor	MCR10EZHG163	1	20		C
	R21	2795 2184	Chip resistor	MCR10EZHG823	1	20		C
N	R22	2795 3836	Chip resistor	MCR10EZHG203	1	20		C
	Q1	2252 0112	Chip transistor	2SC1623-T1B(L6,L7)	1	1		C
N	Q2	2250 0413	Chip transistor	2SA1411-T1B(M16)	1	20		C
N	VR1	3122 1862	Chip volume	MVR32HXBRN203	1	20		C
N	1	5610 7660	Heat seal A-L375	A313350-1	1	1		B
N	2	5610 7670	Heat seal B-L375	A313351-1	1	1		B
N	3	6408 0490	Tape A-L375	A414163-1	1	20		X
	4	6405 9090	Tape D-L373	A413732-1	3	20		X
N	5	6408 0450	LCD holder L375	A211376-1	1	20		C
N	6	6407 9930	Flat screw A-L370	A310044-41	1	20		C
N	7	6409 2950	Adhesive tape B-L375	A414588-1	2	20		C
	8	6405 9110	Adhesive tape C-L373	A412118-2	2	20		C
N	9	3335 4711	LCD	CD777-TS	1	1		C
N	10	6409 2960	PC joiner B-L375	A413642-4	1	5		C
N	13	6408 0410	L375-2 ass'y	A211385*1	1	1		C
			(This unit contains the above parts as it's element)					
N	11	6408 0380	L375-1 ass'y	A110928A*1 H	1	1		A
			(This unit contains the above parts as it's element)					
		L375-2 ASS'Y						
	IC3	2101 0952	MOS IC	TC4049BF-TP1	1	1		C
N	IC4	2105 3220	CMOS IC	RH5VL36CA-T1	1	10		C
N	IC5	2105 2982	MOS IC	S-80250AG-GB-T1	1	5		C
N	C10/C11	2803 6687	Electrolytic capasitor	10RE2-22-T58-T	2	20		C
	C12/C17	2845 1540	Chip capacitor	MCH212F104ZK	2	20		C
N	C13/C16	2803 6701	Electrolytic capacitor	25RC2-4R7-T58-T	2	20		C
	C14	2845 1925	Chip capacitor	MCH312F105ZP	1	10		C
N	C15	2845 4711	Chip capacitor	MCH215C152KK	1	20		C
N	TR1	3841 1183	Chip coil	CM5-01	1	5		C
	D1	2390 1407	Chip diode	MA998-(TX)	1	10		C

Notes: N – New parts
M – Minimum order/supply quantity
R – Rank
Q – Quantity used per unit

R – A : Essential
B : Stock recommended
C : Others
X : No stock recommended

N	Item	Code No.	Parts Name	Specification	Q	M	FOB Japan N.R.Yen Unit Price	R
	D2	2390 0364	Schottky diode	MA713-TX	1	10		C
N	D3	2360 2247	Zenner diode	DTZ9.1BTT11	1	20		C
	D4	2301 2359	Chip diode	MA151K-(TX)	1	20		C
	R10	2792 0462	Chip resistor	MCR10EZHJ473	1	20		C
	R11	2792 1191	Chip resistor	MCR10EZHJ182	1	10		C
	R12	2792 0470	Chip resistor	MCR10EZHJ102	1	20		C
	R13	2730 0547	Chip resistor	MCR10EZHJ124	1	20		C
	R15	2795 0532	Chip resistor	MCR10EZHJ105	1	20		C
N	R16	2730 0583	Chip resistor	MCR10EZHG474	1	20		C
	R19	2792 0926	Chip resistor	MCR10EZHJ100	1	20		C
	R14	2795 0742	Chip resistor	MCR10EZHJ683	1	20		C
	R20	2792 0462	Chip resistor	MCR10EZHJ473	2	20		C
N	R23	2795 0518	Chip resistor	MCR10EZHG153	1	20		C
	Q3	2259 0959	Chip digital transistor	DTC114YKT-146	1	20		C
N	Q4/Q7	2250 0826	Chip transistor	2SA1179M6,M7-TB	2	20		C
	Q5	2221 0378	Chip transistor	2SC2812-L5,L6-TB	1	20		C
N	Q8	2250 0833	Chip transistor	2SA1622-M7-TB	1	20		C
	J1	3501 6538	Miniature jack	HSJ1169-012010	1	5		C
N	12	6408 0480	PC joiner L375	A413642-2	1	10		C
N	13	6408 0410	L375-2 ass'y	A211385*1	1	1		C
			(This unit contains the above parts as it's element)					
		LOWER CASE ASS'Y						
N	14	6408 0440	Lower case L375	A110919-1	1	1		C
N	15	6408 0010	Battery spring A-L375	A311808-3	1	20		C
N	16	6407 9950	Battery spring B-L375	A310154-3	1	20		C
N	17	6408 0460	Switch knob L375	A313343-1	1	10		C
N	18	6408 0100	Battery spring A-L370	A410112-3	1	20		C
N	19	6408 0110	Battery spring B-L370	A410113-3	2	20		C
N	20	6408 0120	Battery spring L370	A412218-2	1	20		C
N	21	6408 0170	CushionA-L370	A413632-1	3	20		C
	22	6391 8831	Reset key V160	A311024A-1	1	20		C
	23	6274 7023	Contact spring	A4532C-1	1	10		C
N	24	6408 0091	Battery spring A-L375	A33938-3	1	20		C
	25	6405 9260	Nut L373	A411430-3	1	20		C
	26	6405 9240	Battery insuration plate L373	A413729-1	1	20		C
	27	6405 9250	Insuration seal L373	A413730-1	1	20		C
	28	6405 6440	Blind L171	A413625-1	1	20		C
		COMPONENT						
N	29	6407 9961	Battery cover L375	A310945A-3	1	20		C
N	30	6408 0470	Display plate L375	A313345-1	1	5		C
N	31	6408 0220	Rubber foot L375	A413646-1	1	20		C
N	32	6408 0430	Upper case L375	A110918-1	1	1		C
N	33	6408 5190	Button A-L375	A211169-2	1	10		C
N	34	6408 5210	Button B-L375	A211316-2	1	10		C
N	35	6408 0030	Button C-L370	A312937-1	1	20		C
N	36	6408 5200	Button D-L375	A211172-2	1	20		C
N	37	6408 0070	Button E-L370	A313257-1	1	20		C
N	38	6408 0080	Button F-L370	A313257-2	1	20		C
N	39	6408 5220	Button G-L375	A311693-13	1	20		C
N	40	6408 5230	Button H-L375	A311693-14	1	20		C
N	41	6408 5240	Button I-L375	A311693-15	1	20		C
N	42	6408 5250	Button J-L375	A311639-16	1	20		C
N	43	6408 0020	Button K-L370	A312914-1	1	10		C

Notes: N – New parts
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N	Item	Code No.	Parts Name	Specification	Q	M	FOB Japan N.R.Yen Unit Price	R
N	44	6407 9880	Key contact rubber L370	A211181-1	1	5		C
N	45	6407 9900	Hard case L370	A211187-1	1	5		C
N	46	6407 9910	Battery cover L370	A211188-1	1	20		C
N	47	6407 9930	Flat screw A-L370	A310044-41	6	20		C
N	48	6407 9940	Flat screw C-L370	A310044-43	5	20		C
N	49	6408 0060	Battery cover L370	A312944-1	1	20		C
N	50	6408 0200	Label L370	A413640-1	1	20		X
	51	6390 0431	Cap V332	A310765A-1	1	20		B
	52	6405 8860	Decoration screw C-L373	A412299-6	1	20		C
	53	6405 8780	Tape E-L373	A411085-3	1	20		X
N	54	6409 4270	Cushion B-L375	A414576-1	3	20		C
N	55	6409 2940	Cushion C-L375	A414577-1	1	20		C

Notes: N – New parts
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